

L Number	Hits	Search Text	DB	Time stamp
1	112539	paraffin	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:47
2	975055	alkyl	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:48
3	2513	alkyl adj carboxylic adj acid	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:49
4	1181	eicosane	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:49
5	475	nonadecane	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:49
6	16711	razor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:50
7	565	paraffin and razor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:50
8	11	paraffin with razor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:52
9	0	alkyl with (paraffin with razor)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:52
10	11	alkyl with razor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:56
11	1	(alkyl adj carboxylic adj acid) with razor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:56
12	1	eicosane with razor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:56
13	1	nonadecane with razor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:56

14	2451809	heat	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:59
15	3792	heat with paraffin	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:59
16	7670	heat same paraffin	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 07:59
17	335515	skin	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 08:00
18	42	(heat with paraffin) same skin	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 08:07
19	271676	heat with water	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 08:10
20	3792	paraffin with heat	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 08:11
21	42	skin same (paraffin with heat)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 08:11
22	395	paraffin with (heat with water)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 08:12
23	12	skin same (paraffin with (heat with water))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 08:13
24	0	(alkyl adj carboxylic adj acid) with (heat with water)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 08:13
25	4	eicosane with (heat with water)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 08:18
26	0	nonadecane with (heat with water)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/05/15 08:18

Set	Items	Description
S1	2436	CO=GILLETTE
S2	16765	AU=(BRANDT K? OR BRANDT, K? OR DAVIS S? OR DAVIS, S? OR DO- DD K? OR DODD, K? OR PARENT C? OR PARENT, C?)
S3	66	AU=(SZCZEPANOWSKI A? OR SZCZEPANOWSKI, A? OR WOODNORTH D? - OR WOODNORTH, D?)
S4	239252	RAZOR? ? OR SHAVE OR SHAVING OR SHAVES OR SHAVER? ?
S5	11234	PHASE()CHANGE(10N) (MATERIAL? OR SUBSTANCE? OR COMPOUND?)
S6	23135	IC=B26B?
S7	19235	S2 OR S3 OR S1
S8	1275	S7 AND S4
S9	2	S8 AND S5
S10	2	S9 AND S6

?show files

File 347:JAPIO Oct 1976-2003/Jun(Updated 031006)
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File 348:EUROPEAN PATENTS 1978-2003/Oct W02
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File 349:PCT FULLTEXT 1979-2002/UB=20031016,UT=20031009
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10/5,K/1 (Item 1 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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015387544 **Image available**
WPI Acc No: 2003-448489/200342
XRPX Acc No: N03-357794

Razor used when shaving , has phase change material which is
provided within head mounted on handle
Patent Assignee: BRANDT K (BRAN-I); DAVIS S M (DAVI-I); DODD K T (DODD-I);
PARENT C R (PARE-I); SZCZEPANOWSKI A (SZCZ-I); WOODNORTH D J (WOOD-I);
GILLETTE CO (GILL)
Inventor: BRANDT K ; DAVIS S M ; DODD K T ; PARENT C R ; SZCZEPANOWSKI
A ; WOODNORTH D J

Number of Countries: 101 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030088984	A1	20030515	US 20012920	A	20011115	200342 B
WO 200343791	A1	20030530	WO 2002US34770	A	20021030	200345

Priority Applications (No Type Date): US 20012920 A 20011115

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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US 20030088984	A1		10	B26B-021/40	
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WO 200343791	A1	E		B26B-021/40	
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Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA
CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN
IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ
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YU ZA ZM ZW

Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB
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Abstract (Basic): US 20030088984 A1

NOVELTY - A phase change material is provided within a head
mounted on a handle (14).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a
shaving method.

USE - Used when shaving .

ADVANTAGE - Ensures comfortable shave since warm temperature is
applied to skin during shaving .

DESCRIPTION OF DRAWING(S) - The figure shows the isometric view of
a razor .

Handle (14)

pp; 10 DwgNo 1/6

Title Terms: RAZOR ; SHAVE ; PHASE; CHANGE; MATERIAL; HEAD; MOUNT; HANDLE
Derwent Class: P62

International Patent Class (Main): B26B-021/40

International Patent Class (Additional): B26B-021/52

File Segment: EngPI

Razor used when shaving , has phase change material which is
provided within head mounted on handle

Inventor: BRANDT K ...

... DAVIS S M ...

... DODD K T ...

... PARENT C R ...

... SZCZEPANOWSKI A ...

... WOODNORTH D J

Abstract (Basic):

... A phase change material is provided within a head mounted
on a handle (14).

... An INDEPENDENT CLAIM is included for a shaving method...

...Used when **shaving** .

...

...Ensures comfortable **shave** since warm temperature is applied to skin during **shaving** .

...

...The figure shows the isometric view of a **razor** .

Title Terms: **RAZOR** ;

International Patent Class (Main): **B26B-021/40**

International Patent Class (Additional): **B26B-021/52**

10/5,K/2 (Item 1 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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01014093 **Image available**

SHAVING RAZORS AND RAZOR CARTRIDGES
RASOIRS ET CARTOUCHES ASSOCIEES

Patent Applicant/Assignee:

THE GILLETTE COMPANY, Prudential Tower Building, Boston, MA 02119, US, US
(Residence), US (Nationality), (For all designated states except: US)

Patent Applicant/Inventor:

BRANDT Klaus , 50 Summit Road, Wellesley, MA 02181, US, US (Residence),
DE (Nationality), (Designated only for: US)

DAVIS Stuart M , 26 Noon Hill Avenue, Norfolk, MA 02056, US, US
(Residence), US (Nationality), (Designated only for: US)

DODD Kenneth T , 50 Orchard Street, Upton, MA 01568, US, US (Residence),
US (Nationality), (Designated only for: US)

PARENT Charles Robert , 15 Spellman Road, Westwood, MA 02090, US, US
(Residence), US (Nationality), (Designated only for: US)

SZCZEPANOWSKI Andrew , 7 Whiting Avenue, Walpole, MA 02081, US, US
(Residence), US (Nationality), (Designated only for: US)

WOODNORTH Douglas J , 90 Manning Street, Needham, MA 02494, US, US
(Residence), US (Nationality), (Designated only for: US)

Legal Representative:

GALLOWAY Peter D (et al) (agent), Ladas & Parry, 26 West 61st Street, New
York, NY 10023, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200343791 A1 20030530 (WO 0343791)

Application: WO 2002US34770 20021030 (PCT/WO US0234770)

Priority Application: US 20012920 20011115

Parent Application/Grant:

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Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU

CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP

KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO

RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR

(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Main International Patent Class: **B26B-021/40**

International Patent Class: **B26B-021/52**

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5021

English Abstract

Shaving razors and cartridges are provided that impart warmth to a user's skin during **shaving** . The **razors** and cartridges include a **phase change material** .

French Abstract

L'invention concerne des rasoirs et des cartouches qui apportent de la chaleur a la peau d'un utilisateur, pendant le rasage. Les rasoirs et les cartouches englobent une matiere a changement de phase.

Legal Status (Type, Date, Text)

Publication 20030530 A1 With international search report.

Examination 20030626 Request for preliminary examination prior to end of 19th month from priority date

SHAVING RAZORS AND RAZOR CARTRIDGES

Patent Applicant/Inventor:

BRANDT Klaus ...

...Designated only for: US)

DAVIS Stuart M ...

...Designated only for: US)

DODD Kenneth T ...

...Designated only for: US)

PARENT Charles Robert ...

...Designated only for: US)

SZCZEPANOWSKI Andrew ...

...Designated only for: US)

WOODNORTH Douglas J ...

Main International Patent Class: B26B-021/40

International Patent Class: B26B-021/52

Fulltext Availability:

Detailed Description

Claims

English Abstract

Shaving razors and cartridges are provided that impart warmth to a user's skin during shaving. The razors and cartridges include a phase change material.

Detailed Description

SHAVING RAZORS AND RAZOR CARTRIDGES

This invention relates to shaving razors and razor cartridges.

Users of wet-shave razors generally appreciate a feeling of warmth against their skin during shaving. The warmth feels good, and also causes the user's skin to hydrate and beard to soften, resulting in a more comfortable shave.

Various attempts have been made to provide a warm feeling during shaving. For example, shaving creams have been formulated to react exothermically upon release from the shaving canister, so that the shaving cream imparts warmth to the skin. Also, razor heads have been heated using hot air, ...with power being supplied by a power source such as a battery.

The invention features razors that include a phase change material

that is capable of delivering heat to a user's skin. Phase change materials store latent heat when melted, and release it during recrystallization. The phase change material in the razor is a solid at room temperature, and can be easily melted, "thermally charging" the razor, by holding the razor under warm running water or immersing the razor in warm water. (The phase change material is enclosed in the razor so that it does not flow out when melted). When the thermally charged razor is used, as the melted phase change material recrystallizes it will release heat in a controlled manner, at a specific temperature (the melting point of the phase change material) imparting a warm feeling to the user's skin.

Generally, the temperature of the **phase change material** will not exceed the melting temperature of the **material** for any significant period of time (i.e., more than a second or two), even if the **razor** is exposed to a higher temperature (e.g., scalding water) during the melting phase. The temperature of the **razor** will not exceed the melting point of the **phase change material** until all of the **phase change material** has melted. Therefore, it is unlikely that a **razor** with a **phase change material** will become uncomfortably hot even if exposed to higher temperatures.

The **razors** of the invention do not require a power supply, other than warm water, which is generally readily available when **shaving**. **Razors** of the invention can be manufactured relatively inexpensively, and are safe and reliable in use. The large latent heat capacity of the **phase change material** gives **shavers** the sensation of ...an attribute usually associated with quality, while maintaining a low mechanical mass for ease of **shaving**.

In one aspect, the invention features a **razor** including a handle, a head, mounted on the handle, and within the head, a **phase change material**. The phrase "within the head" includes any portion of the head, for example providing the **phase change material** within the housing in which the blades are mounted, or providing the **phase change material** in a capsule or other member that is mounted on or otherwise associated with the housing.

Some implementations may include one or more of the following features. The **phase change material** has a melting point between about 30 and 50 degrees C, e.g., between about 32 and 45 degrees C. The **razor** has a discharging interval of greater than 15 seconds. The **razor** has a recharging time of less than 10 seconds, preferably less than 5 seconds. The head contains from about 0.1 to 0.5 cm³ of the **phase change material**. The head contains a sufficient quantity of the **phase change material** so that the temperature of the head will not exceed the melting temperature of the **phase change material** under non-nal use conditions. The **phase change material** is microencapsulated and the microcapsules are dispersed through the **material** of the head. The **phase change material** is disposed in a chamber within the head.

The **phase change material** may include a paraffin, a low melting salt, a low melting salt containing water of crystallization, a low melting eutectic mixture of organic or inorganic **compounds**, a low melting metals or alloys. The **phase change material** may include an alkyl carboxylic acid. The **phase change material** may be selected from the group consisting of undecanoic acid, decanoic acid, nonadecane, eicosane, and tridecanoic acid. In some implementations, the **razor** includes a plurality of phase change materials, e.g., phase change materials having different recrystallization/nucleation rates.

In some implementations, the **razor** further includes an indicator, visible to a user of the **razor**, constructed to provide a visual indication, e.g., a color change, showing whether the **razor** is thermally charged. The indicator may include one or more of the following features. The indicator includes a thermochromic material. The indicator includes a strip positioned on the **razor** head. The indicator includes a thermochromic material distributed through the material ...surface of the head. The indicator is constructed to indicate the degree to which the **razor** is thermally charged. The indicator includes a plurality of thermochromic materials having different color change temperatures. The indicator displays an alphanumeric indicia or logo to indicate when the **razor** is thermally charged. The indicia or logo appears when the **razor** is thermally charged.

In some implementations, a portion of the **razor** further includes a

lubricating agent. The **phase change material** may be disposed in the portion of the **razor** containing the lubricating agent. For example, if the **phase change material** is microencapsulated the microcapsules are distributed through the **material** of the portion of the head containing the lubricating agent. The head may include a strip constructed to deliver a lubricious **substance** to the user's skin, and the **phase change material** may be positioned with respect to the strip so as to increase the rate of...

...the lubricious substance relative to the rate at which it would be delivered if the **phase change material** were not present. For example, the **phase change material** may be incorporated in the strip.

In some implementations, the **razor** includes ...to enhance heat transfer from hot water to the cartridge.

Alternatively or in addition, the **razor** may include a thermally conductive material, e.g., a metal wool or metal foam, positioned adjacent the **phase change material** to enhance thermal energy transfer to and from the **phase change material**.

The invention also features **razor** cartridges that include a **phase change material** within the cartridge housing. In another aspect, the invention features a **razor** including a handle, a head, mounted on the handle, and within the handle, a **phase change material**.

The invention also features a method of **shaving** including: (a) contacting a **razor** head containing a **phase change material** with water that is sufficiently warm to melt the **phase change material**, and then, (b) contacting the skin with the **razor** head, Steps (a) and (b) may be repeated a plurality of times during **shaving**.

The term "**razor**", as used herein, unless otherwise indicated refers both to **razors** that include a handle and a replaceable cartridge, and to disposable **razors** in which the **razor** head is fixedly mounted on a handle.

Other features and advantages of the invention will...and from the claims.

DESCRIPTION OF DRAWINGS

Fig. 1 is a perspective view of a **razor** according to one embodiment of the invention.

Fig. 2 is an enlarged perspective view of the **razor** cartridge shown in Fig. 1, and Fig. 2A is a cross-sectional view of the **razor** cartridge shown in Fig. 1, taken along line A-A in Fig. 2.

Fig. 3 is a front plan view of a **razor** cartridge according to an alternate embodiment of the invention.

Fig. 4 is a perspective view of a **razor** cartridge according to an alternate embodiment of the invention.

Fig. 4A is a perspective view of a **razor** cartridge according to another alternate embodiment of the invention.

Fig. 5 is a cross-sectional view of a **razor** cartridge according to an alternate embodiment of the invention.

Fig. 6 is a cross-sectional view of a **razor** according to an alternate embodiment of the invention.

Referring to Fig. 1, a **razor** 10 includes a handle 14, and, mounted on the handle, a **razor** cartridge 16. Referring to Figs. 2 and 2A, **razor** cartridge 16 includes a molded plastic housing 18, which carries a

plurality of blades 19...the blades 19, so as to lift the hair gradually for a closer, more comfortable **shave**.

The **razor** cartridge 16 may also include other components that improve the performance or extend the life...

...shown) may be included at one end to act as a sacrificial anode.

Also, a **shaving** aid composite 26 may be provided at the upper edge of the housing 16 to...164, the disclosures of which are hereby incorporated by reference.

A capsule 28, containing a **phase change material** 30 (Fig. 2A) is mounted on the housing 18. When the capsule is placed under hot running water, or immersed in hot water, the **phase change material** 30 melts, charging the **razor** as discussed above.

Preferably, the capsule 28 is formed of a material having a relatively...allow adequate heat transfer.

In an alternative embodiment, shown in Fig. 3, housing 18' of **razor** cartridge 16' includes a plurality of chambers 32. Chambers 32 are shown empty, for clarity, but in the finished product are filled with **phase change material** and sealed with covers (not shown). The covers may be opaque or transparent. As discussed the **phase change material**.

Suitable **phase change** materials have a melting temperature between skin temperature and the typical temperature of hot tap...organic or inorganic compounds, low melting metals and alloys.

It is generally preferred that the **razor** have a short "recharging time", i.e., that the **razor** can be thermally charged by holding the **razor** head under hot tap water (...for a relatively short period of time. For this purpose, it is preferred that the **razor** include means to enhance heat transfer from the hot water stream to the **razor** (e.g., heat transfer fins on the **razor**) and means to enhance heat transfer within the **phase change material** capsule (e.g., a low volume fraction of a high thermal conductivity **material** in the **phase change material** capsule). The **razor** is considered to be fully thermally charged when substantially all of the **phase change material** in the **razor** has melted. Preferably, the recharging time is less than about 10 seconds, preferably less than about 5 seconds, when the **razor** is held under running tap water at 45°C.

The lower the melting temperature of the **phase change material**, the shorter the recharging time will be. The volume of **phase change material** contained in the **razor** will also affect the recharging time. Generally, the more **phase change material** is used, the longer the recharging time will be.

It is not necessary that the **razor** be fully thermally charged prior to use; the **razor** will impart a warm feeling even if not all of the **phase change material** is melted. Generally, if at least 0.2 CM³ of **material** melts, heat will be perceived by the user. In fact, it may be advantageous for some of the **phase change material** to remain unmelted. When all of the **phase change material** is melted, the temperature of the **phase change material** may exceed its melting temperature (e.g., if the temperature of the tap water is...

...material). If the tap water were very hot, this could cause brief overheating of the **phase change material**, resulting in a **razor** temperature that could be uncomfortable to the user. If sufficient **phase change material** is used so that it is unlikely that it will all melt during a normal recharging interval, the **phase change material** can serve a "thermostat" function, preventing overheating of the **razor** head.

However, generally even if the temperature of the **phase change material** does exceed its melting temperature, the **phase change**

material will return to its melting temperature after it is removed from the water much more is generally much larger than the specific heat capacity of the **material** times any reasonably encountered temperature excursion above the **phase change material** melting point.

Another criteria in the design of the **razor** is the discharging interval,

i.e., the time period during which the **razor** releases heat. The discharging interval may be measured by first fully charging the **razor**, e.g., by immersing the head in water at a temperature slightly above the melting temperature of the **phase change material** used for a time sufficient to melt all of the **phase change material**, and then determining the length of time over which the **razor** releases latent heat. When the temperature of the **phase change material** drops lower than its melting point no further latent heat will be released. The discharging...

...seconds, e.g., from about 15 seconds to 3 minutes. Because most users rinse their **razors** frequently, generally a long discharging interval is not necessary.

The **razor** will be recharged during each rinse, if the user rinses with warm water.

In applications...the

melting point, the higher the thermal gradient between the user's face and the **razor**, as discussed above. Discharging interval is also dependent on the volume of **phase change material** used; the more **phase change material**, the longer the discharging interval will be. It is also desirable to design the cartridge...

...at a rate that is just sufficient to maintain a sensation of warmth to the **shaver**.

The preferred volume of **phase change material** in the **razor** will depend on the factors discussed above. Generally, 0.1 to 0.5 CM³ will provide a suitable balance of properties. Preferably, a sufficient amount of **phase change material** is included to provide a power output of about 1.0 to 3.0 W for 10 - 60 seconds. The amount of **phase change material** that can be included will generally be limited by design constraints, e.g., the amount of available volume in the **razor** head or cartridge housing. Thus, it is preferred that the **phase change material** have a high latent heat of fusion per unit volume, so that a relatively small volume of **phase change material** will store a relatively large amount of energy. Suitable **phase change materials** generally have a latent heat of fusion per unit volume of from about 100 to 500 kilojoules/decimeter³ (kj/dm³).

In an alternate embodiment, the **phase change material** is microencapsulated, and the microcapsules are distributed throughout the head or a portion of the head, e.g., as shown in Fig. 5, in which housing 38 of **razor** cartridge 42 includes microcapsules 40 (shown highly enlarged for clarity).

Microencapsulated phase change materials are...thermal clothing, e.g., by Gateway Technologies and Outlast Technologies.

In another alternate embodiment, the **phase change material** may be a wax that is absorbed into a secondary supporting structure such as diatomaceous earth (e.g., Rubitherm GR **phase change material** from Rubitherm GmbH), silica (e.g., Rubitherm. PI/PO **phase change material**, from Rubitherm GmbH), or a crosslinked polymer (e.g., Rubitherm PK **phase change material**). These materials may be distributed throughout the head or a portion of the head.

It the user of whether the **razor** is charred. Including such an indicator will prevent the user from needlessly wasting time and energy holding the **razor** head under the water longer than is necessary. The indicator can also prevent the user from overheating the **razor**, by holding the **razor** head under excessively hot water (water which is

significantly hotter than the melting point of the **phase change material**) longer than is needed to charge the **razor** .

Preferably, the indicator includes a then-nochromic material that changes color in response to a...For example, the indicator may include a first thermochromic material that turns blue when the **razor** head is at ambient temperature, a second thermochromic material that turns green when the **razor** head is within the desired temperature range, and a third thermochromic material that turns orange when the **razor** head is above the desired temperature range. As another example, the indicator may include a first thermochromic **material** that turns orange just above the melting point of the **phase change material** , and a second thermochromic **material** that turns blue just below the melting point of the **phase change material** .

In this case, if the indicator were orange, this would indicate that substantially all of the **phase change material** had melted, as the temperature of the **phase change material** generally would not exceed its melting temperature until all of the material had melted,
Many...

...in the form of a strip 60 that is mounted on or molded into the **razor** cartridge housing, as shown ...temperature.

In other implementations, the thermochromic material may be compounded with the plastic of the **razor** head or cartridge housing, or may be blended with the **phase change material** if a transparent window is provided through which the **phase change material** may be viewed by the user. The thermochromic **material** may also be coated on the housing.

Although a thermochromic indicator is desirable from the...

...dial thermometer.

Other embodiments are within the scope of the following claims.

For example, the **razor** cartridge may include two or more phase change materials. The phase change materials may have...just after another material has finished recrystallizing (and therefore lost its latent heat).

Additionally, the **razor** handle can include a **phase change material** , in addition to or instead of the **phase change material** in the head, e.g., as shown in Fig. 6, in which handle 100 includes a chamber 102, containing a **phase change material** . Alternatively, the **phase change material** may be microencapsulated, as described above, Providing a **phase change material** in the handle will give the user the option of heating up the handle for a pleasant, warm grip and enhanced tactile properties.

Moreover, the **phase change material** may be provided at any desired location in the head. For example, the **phase change material** may be incorporated into the **shaving** aid composite 26 (Fig. 2). In this case, heating of the **phase change material** may further facilitate release of the **shaving** aid from the composite.

Also, the head may include any desired number of chambers or capsules containing the **phase change material** . The capsule(s) may include a thermally conductive **material** to promote faster heat transfer in and out of the capsule(s), e.g., a...

...Fins or ribs may also be used to enhance heat transfer to and from the **phase change material** . The capsule(s) may also include through holes through which water may flow, provided that...

...holes are sufficiently small so as to prevent egress of the relatively high viscosity melted **phase change material**.

Additionally, while certain **razor** designs have been ...way of example, the phase change materials described herein may be used in any desired **razor** design. The phase change materials may be used - 11 in both men's and women's **razors**.

- 12

Claim

1 A **razor** comprising:

a handle,
a head, mounted on the handle, and
within the head, a **phase change material**.

2 The **razor** of claim 1, wherein the **phase change material** has a melting point between about 30 and 50 degrees C.

3 The **razor** of claim 1, wherein the **phase change material** has a melting point between about 32 and 45 degrees C.

4 The **razor** of claim 1, wherein the **razor** has a discharging interval of greater than 15 seconds.

5 The **razor** of claim 1, wherein the **razor** has a recharging time of less than 10 seconds.

6 The **razor** of claim 5, wherein the **razor** has a recharging time of less than 5 seconds.

7 The **razor** of claim 1, wherein the head contains from about 0.1 to 0.5 CM³ of the **phase change material**.

8 The **razor** of claim 1, wherein the head contains a sufficient quantity of the **phase change material** so that the temperature of the head will not exceed the melting temperature of the **phase change material** under normal use conditions.

9 The **razor** of claim 1, wherein the **phase change material** is microencapsulated and the microcapsules are dispersed through the **material** of the head.

10 The **razor** of claim 1, wherein the **phase change material** is disposed in a chamber within the head.

11 The **razor** of claim 1, wherein the **phase change material** comprises a paraffin, a low melting salt, a low melting salt containing water of crystallization...

...eutectic mixture of organic or inorganic compounds, a low melting metals or alloys.

12 The **razor** of claim 1, wherein the **phase change material** comprises an alkyl carboxylic acid.

13 The **razor** of claim 1, wherein the **phase change material** is selected

- 13 from the group consisting of undecanoic acid, decanoic acid, nonadecane, eicosane, and tridecanoic acid.

14 The **razor** of claim 13, wherein the **phase change material** is

eicosane.

15 The **razor** of claim 13, wherein the **phase change material** is nonadecane.

16 The **razor** of claim 1, comprising a plurality of phase change materials.

17 The **razor** of claim 16, wherein said phase change materials have different recrystallization/nucleation rates.

18 The **razor** of claim 1, further comprising an indicator, visible to a user of the **razor**, constructed to provide a visual indication of whether the **razor** is thermally charged.

19 The **razor** of claim 18, wherein the visual indication comprises a color change.

20 The **razor** of claim 19, wherein the indicator comprises a thermochromic material.

21 The **razor** of claim 18, wherein the indicator comprises a strip positioned on the **razor** head.

22 The **razor** of claim 18, wherein the indicator comprises a then-nochromic material distributed through the material of the head.

23 The **razor** of claim 18, wherein the indicator comprises a thermochromic material coated on a surface of the head.

24 The **razor** of claim 18, wherein the indicator is constructed to indicate the degree to which the **razor** is thermally charged.

25 The **razor** of claim 18, wherein the indicator comprises a plurality of thermochromic materials having different color change temperatures.

26 The **razor** of claim 18, wherein the indicator displays an alphanumeric indicia or logo to indicate when the **razor** is thermally charged.

27 The **razor** of claim 26, wherein the indicia or logo appears when the **razor** is thermally charged.

28 The **razor** of claim 9, wherein the microcapsules are distributed through the material of a portion of the head containing a lubricating agent. - 14

29 The **razor** of claim 1, wherein the **phase change material** is disposed in a portion of the head containing a lubricating agent.

30 The **razor** of claim 1, further comprising heat transfer fins on the cartridge constructed to enhance heat transfer from hot water to the cartridge.

31 The **razor** of claim 1, further comprising a thermally conductive **material** positioned adjacent the **phase change material** to enhance thermal energy transfer to and from the **phase change material**.

32 The **razor** of claim 31, wherein the thermally conductive material comprises a metal wool or metal foam.

33 The **razor** of claim 1, further comprising, on the head, a strip constructed to deliver a lubricious substance to the user's skin.

34 The **razor** of claim 33, wherein the **phase change material** is

positioned with respect to the strip so as to increase the rate of delivery...

...the lubricious substance relative to the rate at which it would be delivered if the **phase change material** were not present.

35 The **razor** of claim 34, wherein the **phase change material** is incorporated in the strip.

36 A **razor** comprising:

a handle,
a head, mounted on the handle, and
within the head, a plurality of phase change materials, the phase change materials having different recrystallization/renucleation rates.

37 A **razor** cartridge comprising:

a housing;
a **razor** blade mounted in the housing; and
within the housing, a **phase change material**.

38 A **razor** comprising:

a handle,
a head, mounted on the handle,
within the head, a **phase change material**, wherein melting of the **phase change material** thermally charges the **razor**, and
an indicator, visible to a user of the **razor**, constructed to provide a - 15 visual indication to the user to indicate whether the **razor** is thermally charged.

39 The **razor** of claim 38, wherein the visual indication comprises a color change.

40 The **razor** of claim 39, wherein the indicator comprises a thermochromic material.

41 The **razor** of claim 38, wherein the indicator comprises a strip positioned on the **razor** head.

42 The **razor** of claim 38, wherein the indicator comprises a thermochromic material distributed through the material of the head.

43 The **razor** of claim 38, wherein the indicator is constructed to indicate the degree to which the **razor** is thermally charged.

44 The **razor** of claim 38, wherein the indicator displays an alphanumeric indicia or logo to indicate when the **razor** is thermally charged.

45 The **razor** of claim 44, wherein the indicia or logo appears when the **razor** is thermally charged.

46 A **razor** comprising:

a handle,
a head, mounted on the handle, and
within the handle, a **phase change material**.

47 A **razor** comprising:

a handle,
a head, mounted on the handle,
within the head, a **phase change material**, wherein melting of the **phase change material** thermally charges the **razor**, and
on the head, a strip constructed to deliver a lubricious **substance** to the user's skin;
wherein the **phase change material** is positioned with respect to the strip so as to increase the rate of delivery substance relative to the rate at which it would be delivered if the **phase change material** were not present.

48 A method of **shaving** comprising:

(a) contacting a **razor** head containing a **phase change material** with

water that is sufficiently warm to melt the **phase change material** ,
and then, - 16

(b) contacting the skin with the **razor** head.

49 The method of claim 48, further comprising repeating steps (a) and
(b) during **shaving** .

50 The method of claim 48, wherein the **razor** head includes an indicator
constructed to indicate to the user whether the **phase change**
material has melted, and

Set	Items	Description
S1	1480	PHASE()CHANGE(5N) (MATERIAL OR MATERIALS OR SUBSTANCE OR SUBSTANCES OR COMPOUND OR COMPOUNDS OR SALT OR SALTS OR METAL OR METALS OR ALLOY OR ALLOYS)
S2	13	PHASE()CHANGE/DE
S3	1803	(LOWMELT? OR LOW()MELT?) () (SALT? ? OR METAL? ? OR ALLOY? ? OR COMPOUND? ? OR SUBSTANCE? ? OR MATERIAL? ?)
S4	1962	ALKYL()CARBOXYLIC()ACID? ? OR ALKYL CARBOXYL?()ACID? ?
S5	53829	EUTECT? OR PARAFFIN?
S6	1619	UNDECANOIC? OR UN()DECANOIC? OR DECANOIC? OR DE()CANOIC? OR NONADECAN? OR NONA()DECAN? OR NONDECAN? OR NON()DECAN?
S7	731	EICOSAN? OR TRIDECANOIC? OR TRI()DECANOIC?
S8	643	LATENT()HEAT()STORAGE
S9	0	(RECRYSTAL? OR RE()CRYSTAL?) (10N) (RENUCLEAT? OR RE()NUCLEAT?)
S10	18356	SAFETYRAZOR? OR RAZOR? ? OR SHAVER? ? OR SHAVING OR SHAVE - OR SHAVES OR SHAVED OR STRAIGHTRAZOR? ?
S11	1081717	FACE OR FACES OR FACIAL()HAIR OR BEARD? ? OR WHISKER? OR LEG OR LEGS OR ARMPIT? OR ARM() (PIT OR PITS)
S12	461	SIDE BURN? OR SIDE()BURN? OR MUSTACH?
S13	20561	IC=B26B?
S14	1490	S1 OR S2
S15	61498	S1:S8
S16	9	S15(10N)S10 -
S17	5	S16 AND (S11:S13)
S18	9	S16 OR S17
S19	7	S18 AND PY<2002
S20	9	S18 OR S19
S21	9	IDPAT (sorted in duplicate/non-duplicate order)

?show files

File 347:JAPIO Oct 1976-2003/Jun(Updated 031006)

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File 350:Derwent WPIX 1963-2003/UD,UM &UP=200367

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File 371:French Patents 1961-2002/BOPI 200209

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21/5,K/8 (Item 8 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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004370377

WPI Acc No: 1985-197255/ 198533

XRAM Acc No: C85-086156

**Linear poly-di-organo-polysiloxane(s) - modified with
alkenyl-acetyl-acetate gps., used for razor blade coating**

Patent Assignee: TONDEO WERK NOSS ADOLF (TONW)

Inventor: NIEBERGALL H

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 1795563	A	19720127	DE 1795563	A	19641102	198533 B

Priority Applications (No Type Date): DE 1795563 A 19641102

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
DE 1795563	A	6		

Abstract (Basic): DE 1795563 A

Linear polydiorganosiloxanes bearing acetylacetate side gps. are produced by addn. of alkenyl acetyl acetone to -Si-H gps. in the presence of inert solvents of a temp. of 0-180 deg.C..

Pref. the addition is carried out under UV-irradiation and the acetylacetone is applied in up to twice molar excess in the presence of catalytic amounts of H₂PtCl₆.6H₂O, platinised charcoal or radical forming cpds. e.g. azodiisobutyronitrile or benzoyl peroxide.

USE/ADVANTAGE - Polymer solns. are used for coating **razor** blades, partic. solns. contg. 5-300% of additional silicone oil, **paraffin** oils of different viscosity or octamethyl-cyclo-tetrasiloxane. The acetylacetate gps. improve the adhesion of the silicone on the steel surface and resist stripping by w.g. a towel. The polymers are resistant to hydrolysis even on repeated immersion in hot-water and are stable on long term storage at high temps..

0/0

Title Terms: LINEAR; POLY; DI; ORGANO; POLYSILOXANE; MODIFIED; ALKENYL;
ACETYL; ACETONATE; GROUP; RAZOR; BLADE; COATING

Derwent Class: A26; A82; G02

International Patent Class (Additional): C08G-031/40

File Segment: CPI

...Abstract (Basic): USE/ADVANTAGE - Polymer solns. are used for coating **razor** blades, partic. solns. contg. 5-300% of additional silicone oil, **paraffin** oils of different viscosity or octamethyl-cyclo-tetrasiloxane. The acetylacetate gps. improve the adhesion of...

21/5,K/9 (Item 9 from file: 347)
DIALOG(R)File 347:JAPIO
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03116888 **Image available**
RAZOR BLADE

PUB. NO.: 02-092388 [JP 2092388 A]
PUBLISHED: April 03, 1990 (**19900403**)
INVENTOR(s): KAWAHARA MANABU
APPLICANT(s): MATSUSHITA ELECTRIC WORKS LTD [000583] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 63-241743 [JP 88241743]
FILED: September 27, 1988 (19880927)
INTL CLASS: [5] **B26B-009/00** ; B26D-001/00
JAPIO CLASS: 25.9 (MACHINE TOOLS -- Other); 25.2 (MACHINE TOOLS -- Cutting & Grinding)
JAPIO KEYWORD:R135 (METALS -- Amorphous Metals)
JOURNAL: Section: M, Section No. 989, Vol. 14, No. 291, Pg. 52, June 22, 1990 (19900622)

ABSTRACT

PURPOSE: To keep sharp edge of a razer blade for a long time by forming the blade with a zirconium oxide single crystal or oiented eutectic or amorphous body of the same.

CONSTITUTION: The blade 1, at least its edge, is formed with a zirconium oxide single crystal such as ZrO_2 - Y_2O_3 and its direction of crystal is selected so that the edge 10 is strongest against bending of the edge section. The blade 1 formed in such a manner is free from chipping by cracking caused by force P generated at the time of polishing with diamond wheel, and its thickness S of edge 11 can be kept $<0.3\mu m$ which is necessary to shave whiskess. And moreover, the sharp edge 11 is kept for long time without chipping by force P' which is generated at the **shaving** the object 6. Oriented **eutectic** body or amorphous metal alloy also available for edge 10 instead of zirconium oxide single crystal.

...PUBLISHED: **19900403**)
INTL CLASS: **B26B-009/00** ; B26D-001/00

ABSTRACT

...is kept for long time without chipping by force P' which is generated at the **shaving** the object 6. Oriented **eutectic** body or amorphous metal alloy also available for edge 10 instead of zirconium oxide single...

Set	Items	Description
S1	1959	PHASE()CHANGE(5N) (MATERIAL OR MATERIALS OR SUBSTANCE OR SUBSTANCES OR COMPOUND OR COMPOUNDS OR SALT OR SALTS OR METAL OR METALS OR ALLOY OR ALLOYS)
S2	9095	PHASE()CHANGE/DE
S3	903	(LOWMELT? OR LOW()MELT?) () (SALT? ? OR METAL? ? OR ALLOY? ? OR COMPOUND? ? OR SUBSTANCE? ? OR MATERIAL? ?)
S4	3508	ALKYL()CARBOXYLIC()ACID? ? OR ALKYL CARBOXYL()ACID? ?
S5	67426	EUTECT? OR PARAFFIN?
S6	6621	UNDECANOIC? OR UN()DECANOIC? OR DECANOIC? OR DE()CANOIC? OR NONADECAN? OR NONA()DECAN? OR NONDECAN? OR NON()DECAN?
S7	5331	EICOSAN? OR TRIDECANOIC? OR TRI()DECANOIC?
S8	120	LATENT()HEAT()STORAGE
S9	3	(RECRYSTAL? OR RE()CRYSTAL?) (10N) (RENUCLEAT? OR RE()NUCLEAT?)
S10	13176	SAFETYRAZOR? OR RAZOR? ? OR SHAVER? ? OR SHAVING OR SHAVE - OR SHAVES OR SHAVED OR STRAIGHTRAZOR? ?
S11	470551	FACE OR FACES OR FACIAL()HAIR OR BEARD? ? OR WHISKER? OR LEG OR LEGS OR ARMPIT? OR ARM() (PIT OR PITS)
S12	201	SIDE BURN? OR SIDE()BURN? OR MUSTACH?
S13	2574	IC=B26B?
S14	8567	PCM OR PCMS
S15	8567	(PCM OR PCMS)/DE
S16	94058	(S1:S9) OR (S14:S15)
S17	2406	S16 AND S10
S18	1058	S17 AND (S11 OR S12)
S19	25	S16(10N)S10
S20	7	S19 AND (S11:S13)
S21	25	S19 OR S20
S22	20	S21 AND PY<2002
S23	25	S22 OR S21
S24	25	IDPAT (sorted in duplicate/non-duplicate order)

?show files

File 348:EUROPEAN PATENTS 1978-2003/Oct W02

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File 349:PCT FULLTEXT 1979-2002/UB=20031016,UT=20031009

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24/5,K/3 (Item 3 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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00768730

SOAP-FREE SELF-FOAMING SHAVE GEL COMPOSITION
SEIFEFREIE,SELBSTSCHAUMENDE RASIERZUSAMMENSETZUNG
COMPOSITION DE GEL A RASER AUTO-MOUSSANTE ET SANS SAVON

PATENT ASSIGNEE:

THE GILLETTE COMPANY, (247381), Prudential Tower Building, Boston,
Massachusetts 02199, (US), (applicant designated states:

AT;BE;CH;DE;DK;ES;FR;GB;GR;IE;IT;LI;LU;NL;PT;SE)

INVENTOR:

GEORGE, Robert, C., Apartment 1 131 Eliot Avenue, Newton, MA 02165, (US)

LASOTA, Andrew, M., 20 Colebrooke Avenue, London W13 0J7, (GB)

LEGAL REPRESENTATIVE:

Baillie, Iain Cameron et al (27951), Ladas & Parry, Altheimer Eck 2,
80331 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 782436 A1 970709 (Basic)

EP 782436 B1 981216

WO 9609032 960328

APPLICATION (CC, No, Date): EP 95932554 950920; WO 95US11955 950920

PRIORITY (CC, No, Date): US 310597 940922

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IE; IT; LI; LU; NL;
PT; SE

INTERNATIONAL PATENT CLASS: A61K-007/15;

NOTE:

No A-document published by EPO

LEGAL STATUS (Type, Pub Date, Kind, Text):

Lapse: 001213 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19981216, BE 19981216, CH 19990322, LI
19990322, PT 19990316,

Application: 960703 A International application (Art. 158(1))
Lapse: 030226 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19981216, BE 19981216, CH 19981216, LI
19981216, GR 19981216, NL 19981216, PT
19990316, SE 19990316,

Lapse: 001227 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19981216, BE 19981216, CH 19981216, LI
19981216, PT 19990316,

Lapse: 010606 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19981216, BE 19981216, CH 19981216, LI
19981216, GR 19981216, PT 19990316, SE
19990316,

Application: 970709 A1 Published application (A1with Search Report
;A2without Search Report)

Examination: 970709 A1 Date of filing of request for examination:
970417

Change: 970813 A1 Representative (change)

Examination: 980506 A1 Date of despatch of first examination report:
980318

Change: 981014 A1 Representative (change)

Grant: 981216 B1 Granted patent

Lapse: 990811 B1 Date of lapse of European Patent in a
contracting state (Country, date): BE 19981216,
PT 19990316,

Lapse: 990825 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19981216, BE 19981216, PT 19990316,

Oppn None: 991208 B1 No opposition filed: 19990917

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text Language Update Word Count

CLAIMS B (English) 9851 330

CLAIMS B	(German)	9851	297
CLAIMS B	(French)	9851	320
SPEC B	(English)	9851	2194
Total word count - document A			0
Total word count - document B			3141
Total word count - documents A + B			3141

...SPECIFICATION water-soluble N-acyl sarcosinate salt, a volatile self-foaming agent, and a non-volatile **paraffinic** hydrocarbon fluid. The essential components of the **shaving** composition of the present invention include, in percent by weight, about 65 to 85% water...

...about 2 to 5% self-foaming agent, and about 1.5 to 7% non-volatile **paraffinic** hydrocarbon fluid. A more preferred **shaving** composition will also additionally include a non-ionic surfactant, a fatty alcohol and a gelling...

...CLAIMS The shaving composition of claim 3, wherein the organic amine base is triethanolamine.

5. The **shaving** composition of claim 4, wherein the non-volatile **paraffinic** hydrocarbon fluid has about 20 to about 40 carbon atoms and a viscosity of about...

24/5,K/4 (Item 4 from file: 349)
 DIALOG(R)File 349:PCT FULLTEXT
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00326522

SOAP-FREE SELF-FOAMING SHAVE GEL COMPOSITION
COMPOSITION DE GEL A RASER AUTO-MOUSSANTE ET SANS SAVON

Patent Applicant/Assignee:

THE GILLETTE COMPANY,
 GEORGE Robert C,
 LASOTA Andrew M,

Inventor(s):

GEORGE Robert C,
 LASOTA Andrew M,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9609032 A1 **19960328**
 Application: WO 95US11955 19950920 (PCT/WO US9511955)
 Priority Application: US 94597 19940922

Designated States: AM AT AU BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU
 IS JP KE KG KP KR KZ LK LR LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU
 SD SE SG SI SK TJ TM TT UA UG US UZ VN KE MW SD SZ UG AT BE CH DE DK ES
 FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Main International Patent Class: A61K-007/15

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 3455

English Abstract

The present invention comprises a soap-free self-foaming shave gel composition which maintains superior performance attributes while avoiding the harshness and drying associated with soap-based shave preparations. The shave gel composition of the present invention comprises water, a water-soluble sarcosinate salt, a volatile self-foaming agent, and a non-volatile paraffinic hydrocarbon fluid.

French Abstract

La presente invention comprend une composition de gel a raser auto-moussante et sans savon, qui presente de tres bonnes qualites d'efficacite, tout en evitant que la peau ne soit seche ou ne brule, comme c'est le cas avec les preparations de rasage a base de savon. La composition de gel a raser de la presente invention contient de l'eau, un sel sarcosinate hydrosoluble, un agent auto-moussant volatile et un

fluide hydrocarbure paraffinique non volatile.

Patent and Priority Information (Country, Number, Date):

Patent: ... 19960328

Fulltext Availability:

Detailed Description

Claims

Publication Year: 1996

Detailed Description

... water-soluble N

acyl sarcosinate salt, a volatile self-foaming agent, and a non-volatile **paraffinic** hydrocarbon fluid.

The essential components of the

shaving composition of the present invention include, in percent by weight, about 65 to 85% water...

...about 2 to 5% self-foaming agent, and about 1.5 to 7% non-volatile **paraffinic** hydrocarbon fluid. A more preferred **shaving** composition will also additionally include a non-ionic surfactant, a fatty alcohol and a gelling...

Claim

... The shaving composition of claim 2. wherein the organic amine base is triethanolamine.

4* The **shaving** composition of claim 3, wherein the non-volatile **paraffinic** hydrocarbon fluid has about 20 to about 40 carbon atoms and a viscosity of about...

...of claim 6, additionally comprising about 1 to 8% of a fatty alcohol.

8* The **shaving** composition of claim 7, wherein the non-volatile **paraffinic** hydrocarbon fluid is selected from the group consisting of mineral oil, hydrogenated polyisobutene, and mixtures...hydrocarbon having 4 to 6 carbon atoms or a mixture of such hydrocarbons,

17* The **shaving** composition of claim 16, wherein the non-volatile **paraffinic** hydrocarbon fluid is selected from the group consisting of mineral oil, hydrogenated polyisobutene, and mixtures...

24/5,K/8 (Item 8 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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01014093 **Image available**

SHAVING RAZORS AND RAZOR CARTRIDGES

RASOIRS ET CARTOUCHES ASSOCIEES

Patent Applicant/Assignee:

THE GILLETTE COMPANY, Prudential Tower Building, Boston, MA 02119, US, US (Residence), US (Nationality), (For all designated states except: US)

Patent Applicant/Inventor:

BRANDT Klaus, 50 Summit Road, Wellesley, MA 02181, US, US (Residence), DE (Nationality), (Designated only for: US)

DAVIS Stuart M, 26 Noon Hill Avenue, Norfolk, MA 02056, US, US (Residence), US (Nationality), (Designated only for: US)

DODD Kenneth T, 50 Orchard Street, Upton, MA 01568, US, US (Residence), US (Nationality), (Designated only for: US)

PARENT Charles Robert, 15 Spellman Road, Westwood, MA 02090, US, US
(Residence), US (Nationality), (Designated only for: US)
SZCZEPANOWSKI Andrew, 7 Whiting Avenue, Walpole, MA 02081, US, US
(Residence), US (Nationality), (Designated only for: US)
WOODNORTH Douglas J, 90 Manning Street, Needham, MA 02494, US, US
(Residence), US (Nationality), (Designated only for: US)

Legal Representative:

GALLOWAY Peter D (et al) (agent), Ladas & Parry, 26 West 61st Street, New York, NY 10023, US,

Patent and Priority Information (Country, Number, Date):

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CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP
KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO
RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
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Main International Patent Class: B26B-021/40

International Patent Class: B26B-021/52

Publication Language: English

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Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5021

English Abstract

Shaving razors and cartridges are provided that impart warmth to a user's skin during **shaving**. The **razors** and cartridges include a **phase change material**.

French Abstract

L'invention concerne des rasoirs et des cartouches qui apportent de la chaleur a la peau d'un utilisateur, pendant le rasage. Les rasoirs et les cartouches englobent une matiere a changement de phase.

Legal Status (Type, Date, Text)

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Main International Patent Class: B26B-021/40

International Patent Class: B26B-021/52

Fulltext Availability:

Detailed Description

Claims

English Abstract

Shaving razors and cartridges are provided that impart warmth to a user's skin during **shaving**. The **razors** and cartridges include a **phase change material**.

Detailed Description

... shaving. The warmth feels good, and also causes the user's skin to hydrate and **beard** to soften, resulting in a more comfortable shave.

Various attempts have been made to provide...with power being supplied by a power source such as a battery.

The invention features **razors** that include a **phase change material** that is capable of delivering heat to a user's skin. Phase change

materials store latent heat when melted, and release it during recrystallization. The **phase change material** in the **razor** is a solid at room temperature, and can be easily melted, "thermally charging" the razor, by holding the razor under warm running water or immersing the **razor** in warm water. (The **phase change material** is enclosed in the **razor** so that it does not flow out when melted). When the thermally charged **razor** is used, as the melted **phase change material** recrystallizes it will release heat in a controlled manner, at a specific temperature (the meltingThe temperature of the **razor** will not exceed the melting point of the **phase change material** until all of the **phase change material** has melted. Therefore, it is unlikely that a **razor** with a **phase change material** will become uncomfortably hot even if exposed to higher temperatures.

The razors of the invention...

...inexpensively, and are safe and reliable in use. The large latent heat capacity of the **phase change material** gives **shavers** the sensation of ...acid. The phase change material may be selected from the group consisting of undecanoic acid, **decanoic acid**, **nonadecane**, **eicosane**, and **tridecanoic acid**. In some implementations, the **razor** includes a plurality of **phase change materials**, e.g., **phase change materials** having different recrystallization/nucleation rates.

In some implementations, the **razor** further includes an indicator, visible to a user of the razor, constructed to provide a...logo appears when the razor is thermally charged.

In some implementations, a portion of the **razor** further includes a lubricating agent. The **phase change material** may be disposed in the portion of the **razor** containing the lubricating agent. For example, if the **phase change material** is microencapsulated the microcapsules are distributed through the material of the portion of the head...

...it would be delivered if the phase change material were not present. For example, the **phase change material** may be incorporated in the strip.

In some implementations, the **razor** includes ...positioned adjacent the phase change material to enhance thermal energy transfer to and from the **phase change material**.

The invention also features **razor** cartridges that include a **phase change material** within the cartridge housing.

In another aspect, the invention features a razor including a handle, a head, mounted on the handle, and within the handle, a **phase change material**.

The invention also features a method of **shaving** including: (a) contacting a **razor** head containing a **phase change material** with water that is sufficiently warm to melt the **phase change material**, and then, (b) contacting the skin with the **razor** head, Steps (a) and (b) may be repeated a plurality of times during shaving.

The...When the capsule is placed under hot running water, or immersed in hot water, the **phase change material** 30 melts, charging the **razor** as discussed above.

Preferably, the capsule 28 is formed of a material having a relatively... melting salts containing water of crystallization, low melting eutectic mixtures of organic or inorganic compounds, **low melting metals** and alloys.

It is generally preferred that the **razor** have a short recharging time",
i.e., that the razor can be thermally charged by...from the hot water stream to the razor (e.g., heat transfer fins on the **razor**) and means to enhance heat transfer within the **phase change material** capsule (e.g., a low volume fraction of a high thermal conductivity **material** in the **phase change material** capsule). The **razor** is considered to be fully thermally charged when substantially all of the **phase change material** in the **razor** has melted. Preferably, the recharging time is less ...of the phase change material, the shorter the recharging time will be. The volume of **phase change material** contained in the **razor** will also affect the recharging time. Generally, the more **phase change material** is used, the longer the recharging time will be.

It is not necessary that the...material). If the tap water were very hot, this could cause brief overheating of the **phase change material**, resulting in a **razor** temperature that could be uncomfortable to the user. If sufficient **phase change material** is used so that it is unlikely that it will all melt during a normal recharging interval, the **phase change material** can serve a "thermostat" function, preventing overheating of the **razor** head.

However, generally even if the temperature of the **phase change material** does exceed its melting temperature, the phase change material will return to its melting temperature...the specific heat capacity of the material times any reasonably encountered temperature excursion above the **phase change material** melting point.

Another criteria in the design of the **razor** is the discharging interval,
i.e., the time period during which the razor releases heat...

...of the phase change material used for a time sufficient to melt all of the **phase change material**, and then determining the length of time over which the **razor** releases latent heat. When the temperature of the **phase change material** drops lower than its melting point no further latent heat will be released. The discharging...point; the higher the melting point, the higher the thermal gradient between the user's **face** and the razor, as discussed above. Discharging interval is also dependent on the volume of...

...is also desirable to design the cartridge such that it releases heat preferentially toward the **face** and at a rate that is just sufficient to maintain a sensation of warmth to the **shaver**.

The preferred volume of **phase change material** in the **razor** will depend on the factors discussed above. Generally, 0.1 to 0.5 CM³ will...
...generally be limited by design constraints, e.g., the amount of available volume in the **razor** head or cartridge housing. Thus, it is preferred that the **phase change material** have a high latent heat of fusion per ...under excessively hot water (water which is significantly hotter than the melting point of the **phase change material**) longer than is needed to charge the **razor**.

Preferably, the indicator includes a then-nochromic material that changes color in response to a...temperature.

In other implementations, the thermochromic material may be compounded with the plastic of the **razor** head or cartridge housing, or may be blended with the **phase change material** if a transparent window is provided through which the phase change material may be viewed
...

...dial thermometer.

Other embodiments are within the scope of the following claims.

For example, the **razor** cartridge may include two or more **phase change materials**. The **phase change materials** may have different ...just after another material has finished recrystallizing (and therefore lost its latent heat).

Additionally, the **razor** handle can include a **phase change material**, in addition to or instead of the phase change material in the head, e.g... change material may be provided at any desired location in the head. For example, the **phase change material** may be incorporated into the **shaving** aid composite 26 (Fig. 2). In this case, heating of the **phase change material** may further facilitate release of the **shaving** aid from the composite.

Also, the head may include any desired number of chambers or...holes are sufficiently small so as to prevent egress of the relatively high viscosity melted **phase change material**.

Additionally, while certain **razor** designs have been shown and described above by way of example, the **phase change materials** described herein may be used in any desired **razor** design. The **phase change materials** may be used - 11 in both men's and women's razors.

- 12

Claim

... razor comprising:

a handle,
a head, mounted on the handle, and
within the head, a **phase change material**.

2 The **razor** of claim 1, wherein the **phase change material** has a melting point between about 30 and 50 degrees C.

3 The **razor** of claim 1, wherein the **phase change material** has a melting point between about 32 and 45 degrees C.

4 The razor of...1, wherein the head contains from about 0.1 to 0.5 CM3 of the **phase change material**.

8 The **razor** of claim 1, wherein the head contains a sufficient quantity of the phase change material so that the temperature of the head will not exceed the melting temperature of the **phase change material** under normal use conditions.

9 The **razor** of claim 1, wherein the **phase change material** is microencapsulated and the microcapsules are dispersed through the material of the head.

10 The **razor** of claim 1, wherein the **phase change material** is disposed in a chamber within the head.

11 The **razor** of claim 1, wherein the **phase change material** comprises a **paraffin**, a low melting salt, a low melting salt containing water of crystallization, a low melting eutectic mixture of organic or inorganic compounds, a low melting **metals** or alloys.

12 The **razor** of claim 1, wherein the **phase change material** comprises an **alkyl carboxylic acid**.

13 The **razor** of claim 1, wherein the **phase change material** is selected

- 13 from the group consisting of **undecanoic acid**, **decanoic acid**, **nonadecane**, **eicosane**,

and tridecanoic acid.

14 The razor of claim 13, wherein the phase change material is eicosane.

15 The razor of claim 13, wherein the phase change material is nonadecane .

16 The razor of claim 1, comprising a plurality of phase change materials .

17 The razor of claim 16, wherein said phase change materials have different recrystallization/nucleation rates.

18 The razor of claim 1, further comprising an indicator, visible to a user of the razor, constructed...the material of a portion of the head containing a lubricating agent. - 14

29 The razor of claim 1, wherein the phase change material is ...the cartridge constructed to enhance heat transfer from hot water to the cartridge.

31 The razor of claim 1, further comprising a thermally conductive material positioned adjacent the phase change material to enhance thermal energy transfer to and from the phase change material .

32 The razor of claim 31, wherein the thermally conductive material comprises a metal wool or metal foam a lubricious substance to the user's skin.

34 The razor of claim 33, wherein the phase change material is positioned with respect to the strip so as to increase the rate of delivery...

...the lubricious substance relative to the rate at which it would be delivered if the phase change material were not present.

35 The razor of claim 34, wherein the phase change material is incorporated in the strip.

36 A razor comprising:
a handle,
a head, mounted on the handle, and
within the head, a plurality of phase change materials , the phase change materials having different recrystallization / renucleation rates.

37 A razor cartridge comprising:
a housing;
a razor blade mounted in the housing; and
within the housing, a phase change material .

38 A razor comprising:
a handle,
a head, mounted on the handle,
within the head, a phase change material , wherein melting of the phase change material thermally charges the razor , and
an indicator, visible to a user of the razor, constructed to provide a - 15...razor comprising:
a handle,
a head, mounted on the handle, and
within the handle, a phase change material .

47 A razor comprising:
a handle,
a head, mounted on the handle,

within the head, a **phase change material**, wherein melting of the **phase change material** thermally charges the **razor**, and on the head, a strip constructed to deliver a lubricious substance to the user substance relative to the rate at which it would be delivered if the **phase change material** were not present.

48 A method of **shaving** comprising:

- (a) contacting a **razor** head containing a **phase change material** with water that is sufficiently warm to melt the **phase change material**, and then, - 16
- (b) contacting the skin with the **razor** head.

49 The method of claim 48, further comprising repeating steps (a) and (b) during...

24/5,K/10 (Item 10 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00915285

POST-FOAMING SHAVE GEL

GEL DE RASAGE AUTOMOUSSANT

Patent Applicant/Assignee:

THE GILLETTE COMPANY, Prudential Tower Building, Boston, MA 02199, US, US (Residence), US (Nationality), (For all designated states except: US)

Patent Applicant/Inventor:

LASOTA Andrew, 20 Colebrook Avenue, London W13, GB, GB (Residence), GB (Nationality), (Designated only for: US)

Legal Representative:

HANDELMAN Joseph H (et al) (agent), Ladas & Parry, 26 West 61st Street, New York, NY 10023, US,

Patent and Priority Information (Country, Number, Date):

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Application: WO 2001US48730 20011213 (PCT/WO US0148730)

Priority Application: GB 200030503 20001214

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CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP

KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO

RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG

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Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 3681

English Abstract

A soap-free self-foaming shave gel composition is disclosed which maintains superior performance attributes while avoiding the harshness and drying associated with soap-based and other ionic shave preparations. The composition is a non-ionic shave gel composition which comprises water, a water-insoluble fatty alcohol, a non-ionic emulsifier, a volatile self-foaming agent, and a non-volatile paraffinic hydrocarbon fluid.

French Abstract

L'invention porte sur une composition de gel de rasage automoussant sans savon qui conserve d'excellentes proprietes et qui ne durcit et ne rend pas la peau seche comme les preparations a base de savon ou autres preparations de rasage ioniques. Cette composition est une composition de gel de rasage non ionique qui comprend de l'eau, un alcool gras insoluble

dans l'eau, un émulsifiant non ionique, un agent automoussant volatil et un fluide d'hydrocarbure paraffinique non volatil.

Legal Status (Type, Date, Text)

Publication 20020620 A2 Without international search report and to be republished upon receipt of that report.

Examination 20021010 Request for preliminary examination prior to end of 19th month from priority date

Fulltext Availability:

Detailed Description

Claims

Detailed Description

... fatty alcohol, a non-ionic emulsifier, a volatile self-foaming agent, and a non-volatile **paraffinic** hydrocarbon fluid.

The essential components of the **shaving** composition of the present invention include, in percent by weight, about 60 to 90% water...

Claim

... composition of claim 1, which contains from 8 to 12% of said emulsifier.

13 The **shaving** composition of claim 1, wherein the non-volatile **paraffinic** hydrocarbon fluid has about 20 to about 40 carbon atoms and a viscosity of about 10 to about 50 cs. at 40°C.

14 The **shaving** composition of claim 13, wherein the non-volatile **paraffinic** hydrocarbon fluid is selected from the group consisting of mineral oils, branched-chain aliphatic liquids...

...oxide; about 1 to 8% self-foaming agent; and about 2 to 10% non-volatile **paraffinic** hydrocarbon fluid.

18 The **shaving** composition of claim 1, which is substantially free of soaps (including interrupted soaps) and of...

24/5,K/13 (Item 13 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00850497 **Image available**

AUTOMATED MICROTOME BLADE CHANGER

CHANGEUR DE LAMES POUR MICROTOME AUTOMATISE

Patent Applicant/Assignee:

VENTANA MEDICAL SYSTEMS INC, 1910 Innovation Park Drive, Tucson, AZ 85737, US, US (Residence), US (Nationality), (For all designated states except: US)

Patent Applicant/Inventor:

HENDRICK Kendall B, 6648 N. Los Leones Drive, Tucson, AZ 85718, US, US (Residence), US (Nationality), (Designated only for: US)

MCDANIEL Darin, 7222 East Clayridge, Tucson, AZ 85750, US, US (Residence), US (Nationality), (Designated only for: US)

HOLUBEC Miroslav, 2045 East Cerrada Nopal, Tucson, AZ 85718, US, US (Residence), US (Nationality), (Designated only for: US)

RICHARDS William, 1885 West Via Mandarina, Tucson, AZ 85737, US, US (Residence), US (Nationality), (Designated only for: US)

RIZZO Vincent, 11087 North Cloud View Place, Tucson, AZ 85737, US, US (Residence), US (Nationality), (Designated only for: US)

Legal Representative:

JONES Huw R (agent), Ventana Medical Systems, Inc., 1910 Innovation Park Drive, Tucson, AZ 85737, US,

Patent and Priority Information (Country, Number, Date):

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Priority Application: US 2000562270 20000429
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CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR
KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE
SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
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Main International Patent Class: G01N-001/06
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 6635

English Abstract

An automated rotary microtome blade changing apparatus, comprising an upper stage (5) being adapted to releasably engage a supply cartridge (15) and a waste cartridge (10), the upper stage having a loading segment (30) adapted to engage and move blades contained within the supply cartridge into a cutting position; clamping means (20) for releasably holding the blades in place for cutting operations; power means for driving the movement of blades and clamping mechanisms; and electronic control means for integrating all of the functions of the apparatus.

French Abstract

L'invention concerne un appareil de changement de lames pour microtome rotatif, automatisé, ledit appareil comprenant un premier étage conçu pour rentrer en contact de manière amovible avec une cartouche de distribution et une cartouche usagée. L'étage supérieur est pourvu d'un segment de chargement servant à introduire et déplacer des lames contenues à l'intérieur de la cartouche de distribution à une position de découpe, d'un dispositif de fixation permettant de tenir de manière amovible les lames en place lors des opérations de découpe, d'un servocommande permettant de guider le mouvement des lames et des mécanismes de fixation, et d'un dispositif de commande électronique servant à intégrer toutes les fonctions de l'appareil.

Legal Status (Type, Date, Text)

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Search Rpt 20020502 Late publication of international search report
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Republication 20020502 A3 Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

Patent and Priority Information (Country, Number, Date):

Patent: ... 20011108
Fulltext Availability:
Detailed Description
Publication Year: 2001

Detailed Description

... been used for many years to meet the exacting requirements necessary for thin sectioning of **paraffin** -embedded tissue. Essentially, microtomes are holders for **razor** -sharp metal blades, against which a block of **paraffin** -embedded tissue is moved in an up-and-down motion. Concurrently, either the tissue block...

24/5,K/14 (Item 14 from file: 349)
DIALOG(R) File 349: PCT FULLTEXT
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00819088

A METHOD OF SHAVING AND A DISPENSING APPARATUS THEREFOR
PROCEDE DE RASAGE ET DISTRIBUTEUR CORRESPONDANT

Patent Applicant/Assignee:

THE GILLETTE COMPANY, Prudential Tower Building, Boston, MA 02199, US, US
(Residence), US (Nationality), (For all designated states except: US)

Patent Applicant/Inventor:

POISSON Norman D, 14 Russett Lane, Andover, MA 01810, US, US (Residence),
US (Nationality), (Designated only for: US)
SOLBECK Arlene H, 18804 Still Meadows Ct., Gaithersburg, MD 20879, US, US
(Residence), US (Nationality), (Designated only for: US)
SOLAN James L, 14809 Lake Terrace, Rockville, MD 20853, US, US
(Residence), US (Nationality), (Designated only for: US)
SEIDENSTICKER Luz, 11 Bryn Mawr Road, Forest Hills, PA 15221, US, US
(Residence), CO (Nationality), (Designated only for: US)
LAWLER John V, 12225 Quince Valley Drive, North Potomac, MD 20878, US, US
(Residence), US (Nationality), (Designated only for: US)
BURGESS-AGEE Kirsten D, 10817 Hampton Mill Terrace #120, North Bethesda,
MD 20852, US, US (Residence), US (Nationality), (Designated only for:
US)
COHEN Richard H, 20616 Top Ridge Drive, Boyds, MD 20841, US, US
(Residence), US (Nationality), (Designated only for: US)

Legal Representative:

HANDELMAN Joseph H (agent), Ladas & Parry, 26 West 61st Street, New York,
NY 10023 (et al), US,

Patent and Priority Information (Country, Number, Date):

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DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ
LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG
SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

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Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 8810

English Abstract

Disclosed is a method of shaving hair by spraying a shaving preparation directly onto an area of skin to form a dispersed layer of the shaving preparation without the need for hand spreading, and shaving the area with a razor. Also disclosed is a dispensing apparatus for spraying a shaving preparation directly onto an area of skin to be shaved. The shaving preparation may be an aerosol or a non-aerosol shaving preparation.

French Abstract

L'invention concerne un procede de rasage de poils par pulverisation d'une preparation de rasage directement sur la zone de peau en vue de former une couche etale de preparation de rasage sans avoir besoin de le faire a la main et de raser cette zone a l'aide d'un rasoir. L'invention concerne egalement un distributeur permettant de pulveriser une preparation de rasage directement sur la zone de peau a raser. Cette preparation de rasage peut se presenter sous forme d'aerosol ou sous une forme differente.

Legal Status (Type, Date, Text)

Publication 20010719 A1 With international search report.

Examination 20011115 Request for preliminary examination prior to end of
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Patent and Priority Information (Country, Number, Date):

Patent: ... 20010719

Fulltext Availability:

Detailed Description

Claims

Publication Year: 2001

Detailed Description

... of gels, foams, arid lotions also exist for removing hair from larger areas such as **legs** . Typically, the shaving preparation is dispensed first onto the user's hand and then applied by hand to the **leg** . However, the user may also apply a dollop of foam or a ribbon of gel directly on the **leg** , then spread it out by hand over the entire surface to be shaved. Because the...
...hand rinsing and, in general, is time consuming.

Another popular option in the case of **legs** involves the simple application by hand of soap, in the form of a bar or...for applying the shaving preparation to large skin areas to be shaved, such as the **legs** , since the spray will quickly cover a wide area.

Fig. I illustrates a woman using a dispensing apparatus of the present invention to spray a shaving preparation directly onto her **leg** in accordance with the present invention.

The invention features a method of shaving hair from...

...of the present invention is especially useful for shaving large skin areas, such as the **legs** , because the shaving preparation may be quickly sprayed over a wide area. It is also...benefits. For example, the shaving preparation may include one or more of the following components: **beard** wetting agents, skin conditioning agents, cleansing agents, lathering agents, foaming agents, emollients, humectants, soaps, detergents... preparation will be formulated so that it will have both good application aesthetics and good **shaving** characteristics.

The **shaving** preparation may contain a non-volatile **paraffinic** hydrocarbon fluid, typically in an amount of about 1 to 10% by weight of the...

Claim

... 2 The method of claim 1, wherein said area of skin is located on a **leg** .

3 The method of claim 1, wherein said area of skin is located on an...

24/5,K/22 (Item 22 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00275512 **Image available**

COSMETIC AND MEDICINAL TOPICAL PREPARATIONS

PREPARATIONS TOPIQUES COSMETIQUES ET MEDICALES

Patent Applicant/Assignee:

BEIERSDORF AG,
GOHLA Sven,
HEINZE Friedrich,
NIELSEN Jens,
THAMSEN Carl,

Inventor(s):

GOHLA Sven,
HEINZE Friedrich,
NIELSEN Jens,
THAMSEN Carl,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9423688 A2 19941027

Application: WO 94EP1145 19940413 (PCT/WO EP9401145)

Priority Application: DE 4312656 19930419
Designated States: CN JP US AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
Main International Patent Class: A61K-007/48
Publication Language: German
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 3887

English Abstract

The use of substances that are generally recognized as safe for cosmetic or pharmaceutical applications and that have positive solution enthalpy, in particular sugar alcohols of general formula (I) where N = 3, 4 and 5, preferably xylitol, in cosmetic or medicinal topical preparations is characterized in that the substances or substances in the preparations are present in a largely water-free medium and/or are shielded from an aqueous medium by a material barrier.

French Abstract

L'utilisation, dans des preparations topiques cosmetiques ou medicales, de substances dont la toxicite est nulle sur le plan cosmetique ou pharmaceutique et dont la chaleur de dissolution est positive, notamment l'utilisation d'alcools du sucre de la formule generale (I) ou n vaut 3, 4 et 5, de preference le xylitol, se caracterise en ce que la ou les substance(s) se trouvant dans les preparations sont presentes dans une substance exempte d'eau dans une large mesure et/ou qu'elles sont protegees d'une substance a teneur aqueuse par une barriere materielle.

Patent and Priority Information (Country, Number, Date):

Patent: ... 19941027
Fulltext Availability:
Detailed Description
Publication Year: 1994

Detailed Description

... 13 4100
Parfum, Farb- und Konservierungsstoffe q.s,
H2O ad 100,00
Beispiel 23
After Shave
Gew.-%
Tagat S 2120
Tegin M 1)60
Isopropylmyristat 8160
ParaffinOl DAB 9 8120
Mikrokapseln gemAss Beispiel 11 5200
CitronensAure 0120
KA1(SO 4)2 12...

24/5,K/24 (Item 24 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00125211 **Image available**

METALLURGICAL PROCESS

PROCEDE METALLURGIQUE

Patent Applicant/Assignee:

LUETH Roy C,
Inventor(s):
LUETH Roy C,

Patent and Priority Information (Country, Number, Date):

Patent: WO 8503464 A1 19850815
Application: WO 84US191 19840210 (PCT/WO US8400191)
Priority Application: WO 84US191 19840210
Designated States: AT BE CH DE FR GB JP NL SE
Main International Patent Class: B22F-003/00
International Patent Class: B22F-03:24

Publication Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 2418

English Abstract

A method for densifying previously sintered parts constructed of powdered metals, ceramics or the like to nearly 100% theoretical density. The method of the present invention comprises heating the parts above their liquid phase temperature and then applying a pressure in the range of 50-2,000 psi to the parts for a predetermined period of time and simultaneously maintaining the parts at or above their liquid phase temperature. The method of the present invention achieves complete closure of even large voids and the elimination of substantially all porosity within the part.

French Abstract

Procede pour augmenter la densite de parties frittees auparavant et a base de metaux pulverises, de ceramiques ou autre jusqu'a une densite theorique de 100%. Le procede decrit par la presente invention comporte la chauffe des parties a une temperature superieure a leur temperature de phase liquide, puis l'application d'une pression de l'ordre de 50-2000 psi auxdites parties pendant un laps de temps predetermine et simultanement le maintien desdites parties a leur temperature de phase liquide ou a une temperature superieure a celle-ci. Le present procede permet la fermeture complete des cavites meme larges, ainsi que l'elimination de pratiquement toute la porosite dans les parties.

Patent and Priority Information (Country, Number, Date):

Patent: ... 19850815

Fulltext Availability:

Detailed Description

Publication Year: 1985

Detailed Description

... Ra 88

2e Place 15 grams of powder in one inch diameter mold.

3* Place **paraffin shaving** -- 1/21 long, approximately .02" diameter -- on powder to produce medium size flaw.

4* Add...

Set	Items	Description
S1	6792	PHASE()CHANGE(5N) (MATERIAL OR MATERIALS OR SUBSTANCE OR SUBSTANCES OR COMPOUND OR COMPOUNDS OR SALT OR SALTS OR METAL OR METALS OR ALLOY OR ALLOYS)
S2	2972	PHASE()CHANGE/DE
S3	851	(LOWMELT? OR LOW()MELT?) (SALT? ? OR METAL? ? OR ALLOY? ? OR COMPOUND? ? OR SUBSTANCE? ? OR MATERIAL? ?)
S4	245	ALKYL()CARBOXYLIC()ACID? ? OR ALKYL CARBOXYL()ACID? ?
S5	141049	EUTECT? OR PARAFFIN?
S6	2200	UNDECANOIC? OR UN()DECANOIC? OR DECANOIC? OR DE()CANOIC? OR NONADECAN? OR NONA()DECAN? OR NONDECAN? OR NON()DECAN?
S7	32785	EICOSAN? OR TRIDECANOIC? OR TRI()DECANOIC?
S8	2701	LATENT()HEAT()STORAGE
S9	0	(RECRYSTAL? OR RE()CRYSTAL?) (10N) (RENUCLEAT? OR RE()NUCLEAT?)
S10	31400	SAFETYRAZOR? OR RAZOR? ? OR SHAVER? ? OR SHAVING OR SHAVE - OR SHAVES OR SHAVED OR STRAIGHTRAZOR? ?
S11	1036319	FACE OR FACES OR FACIAL()HAIR OR BEARD? ? OR WHISKER? OR LEG OR LEGS OR ARMPIT? OR ARM() (PIT OR PITS)
S12	4501	SIDE BURN? OR SIDE()BURN? OR MUSTACH?
S13	21598	PCM OR PCMS
S14	2715	(PCM OR PCMS)/DE
S15	205109	S1:S8 OR S13 OR S14
S16	12	S15(10N)S10
S17	0	S16 AND (S11 OR S12)
S18	11	S16 AND PY<2002
S19	12	S18 OR S16
S20	12	RD (unique items)

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File 29:Meteor.& Geoastro.Abs. 1970-2002/Jul
 (c) 2002 Amer.Meteorological Soc.

20/5,K/3 (Item 2 from file: 8)
DIALOG(R) File 8: Ei Compendex(R)
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02786385 E.I. Monthly No: EI8909094840

Title: Reducing size of eutectic carbides in 65Kh13 razor blade steel by homogenising.

Author: Lyashenko, G. V.; Mysina, G. E.; Pakuleva, V. S.; Korotkevich, E. L.; Chamin, Yu. A.; Grenkov, I. M.

Corporate Source: Ukrainian Scientific Research Inst of Special Steels, USSR

Source: Steel in the USSR v 18 n 2 Feb 1988 p 87-88

Publication Year: 1988

CODEN: SUSRA5 ISSN: 0038-9218

Language: English

Document Type: JA; (Journal Article) Treatment: X; (Experimental)

Journal Announcement: 8909

Abstract: Tests have been conducted to establish the optimum homogenizing schedule for reducing the size of eutectic carbides in 65Kh13 blade steel. Microscopic studies were conducted on microsections from unhomogenized and homogenized specimens. The proposed multistage schedule includes holding for 6-10 h at 1290 degree C and ensures a maximum size of eutectic carbides of 10 mu m and improved carbide homogeneity. (Author abstract) 3 Refs.

Descriptors: *STAINLESS STEEL--*Heat Treatment; IRON AND STEEL METALLOGRAPHY--Microstructures

Identifiers: **EUTECTIC** CARBIDES; **RAZOR** BLADE STEEL

Classification Codes:

545 (Iron & Steel); 537 (Heat Treatment); 531 (Metallurgy & Metallography)

54 (METAL GROUPS); 53 (METALLURGICAL ENGINEERING)

Title: Reducing size of eutectic carbides in 65Kh13 razor blade steel by homogenising.

Identifiers: **EUTECTIC** CARBIDES; **RAZOR** BLADE STEEL

?ds

Set	Items	Description
S1	1198	PHASE()CHANGE(5N) (MATERIAL OR MATERIALS OR SUBSTANCE OR SUBSTANCES OR COMPOUND OR COMPOUNDS OR SALT OR SALTS OR METAL OR METALS OR ALLOY OR ALLOYS)
S2	120	PHASE()CHANGE/DE
S3	112	(LOWMELT? OR LOW()MELT?) (SALT? ? OR METAL? ? OR ALLOY? ? OR COMPOUND? ? OR SUBSTANCE? ? OR MATERIAL? ?)
S4	3	ALKYL()CARBOXYLIC()ACID? ? OR ALKYL CARBOXYL()ACID? ?
S5	18904	EUTECT? OR PARAFFIN?
S6	119	UNDECANOIC? OR UN()DECANOIC? OR DECANOIC? OR DE()CANOIC? OR NONADECAN? OR NONA()DECAN? OR NONDECAN? OR NON()DECAN?
S7	625	EICOSAN? OR TRIDECANOIC? OR TRI()DECANOIC?
S8	53	LATENT()HEAT()STORAGE
S9	2	(RECRYSTAL? OR RE()CRYSTAL?) (10N) (RENUCLEAT? OR RE()NUCLEAT?)
S10	217874	SAFETYRAZOR? OR RAZOR? ? OR SHAVER? ? OR SHAVING OR SHAVE - OR SHAVES OR SHAVED OR STRAIGHTRAZOR? ?
S11	4336958	FACE OR FACES OR FACIAL()HAIR OR BEARD? ? OR WHISKER? OR LEG OR LEGS OR ARMPIT? OR ARM() (PIT OR PITS)
S12	18028	SIDE BURN? OR SIDE()BURN? OR MUSTACH?
S13	19448	PCM OR PCMS
S14	964	(PCM OR PCMS)/DE
S15	40262	S1:S9 OR S13 OR S14
S16	18	S15(10N)S10
S17	2	S16 AND (S11 OR S12)
S18	18	S16 OR S17
S19	15	S18 AND PY<2002
S20	18	S19 OR S18
S21	13	RD (unique items)

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File 15:ABI/Inform(R) 1971-2003/Oct 21
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File 631:Boston Globe 1980-2003/Oct 21
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21/5,K/3 (Item 3 from file: 9)
DIALOG(R)File 9:Business & Industry(R)
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2351184 Supplier Number: 02351184 (USE FORMAT 7 OR 9 FOR FULLTEXT)
A closer shave - KMI stops men getting in a lather
(KMI introduced two Kinexium shaving gels in unmentholated and mentholated varieties; will introduce two new skin care products in early 1999)
Soap, Perfumery & Cosmetics, v 71, n 12, p 30
December 1998
DOCUMENT TYPE: Journal ISSN: 0037-749X (United Kingdom)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 206

TEXT:

King of Shaves was first launched by KMI (Knowledge and Merchandising) in 1993. Its' only method of advertising was through its home page on the internet. Yet in the space of five years it has become the third most popular shaving product in the UK shaving preps market and has sold 1,500,000 units worldwide.

The product set out to dispel a number of shaving myths. The main one is that only products that lather up perform well. The shaving oil by contrast is characterised by the fact that it is based on an oil instead of a foam or a lathering gel.

It contains an essential oil base instead of the liquid **paraffin** traditionally used in **shaving** preps, which has a tendency to clog pores and cause blackhead development. The low lather also prevents the skin from drying out.

King of Shaves has recently been joined by two Kinexium shaving gels in mentholated and unmentholated variants, and two skin care products are expected to follow in early 1999.

photo omitted

Founder and managing director of the company, Will King, says: "It's all about exceeding consumer expectations. Giving better than the best a man can get. Injecting the fun into the functional."

For more information contact: www.shave.com

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COMPANY NAMES: KMI LTD
INDUSTRY NAMES: Personal care products
PRODUCT NAMES: Shaving preps (284485)
CONCEPT TERMS: All product and service information; Product introduction
GEOGRAPHIC NAMES: European Union (EUCX); United Kingdom (UNK); Western Europe (WEEX)

(USE FORMAT 7 OR 9 FOR FULLTEXT)

TEXT:

...foam or a lathering gel.

It contains an essential oil base instead of the liquid **paraffin** traditionally used in **shaving** preps, which has a tendency to clog pores and cause blackhead development. The low lather...